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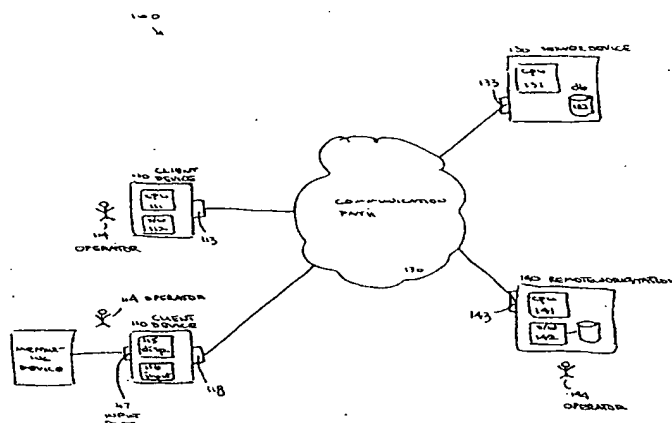
(57) Abstract

The invention provides a method and system for aggregating and pooling information with feedback in a computer communication system. A communication system includes a server device and a set of client devices. Each client device collects information from an associated individual (whether by asking questions of those individuals, or accepting data input from peripheral devices), and transmits that data to a server device. The server device, or some other device at its behest, determines statistical information with regard to that data (such as aggregate, correlation, dispersion, or other measures), and provides that information to a communication channel for distribution to the individuals. The communication channel can include either (1) a braodcast communication channel that members of an affinity group can display, or (2) redistributing the determined statistical measures to associated individuals using the client devices. The statistical measure (such as an aggregate or sum) can be computed and distributed for the entire population, or can be computed and compared for selected sub-populations as a contest.

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<u>Title of the Invention</u>

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Aggregating and Pooling Information in a Communication System with Feedback

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13

<u>Background of the Invention</u>

14

15   1.   *Field of the Invention*

16

17   This invention relates to aggregating and pooling information.

18

19   2.   *Related Art*

20

21   In programs that have a number of participants, it sometimes is desirable to

22   aggregate information from those participants, so as to indicate to individuals in a popu-

1   lation when the population (or a subset of that population) is achieving a selected goal.

2   For example, in fund-raising events for an affinity group, it is often desirable to publicize

3   to the individuals the progress of the fund-raising event toward a selected goal. Similarly,

4   in an affinity group such as a weight-loss club, it would be advantageous to be able to

5   publicize the collective results of the efforts of individuals in the affinity group.

6

7   One problem in the known art is that of collecting information from diverse

8   sources, aggregating that information, and presenting that information to the individual

9   · members of the population. This problem is particularly exacerbated if the information to

10 be collected is not available in any single location, and is further exacerbated if the indi-

11 viduals to receive the information to be publicized are not available in any single location.

12

13   The known art includes methods for aggregating and pooling information

14 for bidding or otherwise conducting auctions using distributed communication systems.

15 Some of these known methods include systems described as known art in the following

16 applications:

17

18 o   U.S. Application Serial No. 09/092.604, "Method for Conducting an On-Line Bid-

19   ding Session with Bid Pooling," filed June 5, 1998, in the name of the same in-

20   ventor, and assigned to the same assignee;

21

22 and

1   0   U.S. Application Serial No. 08/603,131, filed February 20, 1996, issued on August

2   11, 1998, as U.S. Patent 5,794,219, in the name of the same inventor, and assigned

3   to the same assignee.

4

5   These applications are hereby incorporated by reference as if fully set forth

6   herein, and are collectively referred to herein as the "On-Line Bidding Disclosures." Al-

7   though these applications describe other known art, no admission is made herein that any

8   part of these applications are themselves known in the art.

9

10   In the On-Line Bidding Disclosures, individual users, coupled to a system

11   using a communication network, are able to enter values into their client devices. The

12   individual values are collected at a server device or other data clearinghouse. The indi-

13   vidual values are aggregated or pooled. The aggregated or pooled information is used to

14   determine whether the individual users, either individually or in sub-populations, are win-

15   ners of the on-line auction.

16

17   Accordingly, it would also be advantageous to aggregate or pool informa-

18   tion (whether medical, financial, or otherwise) so that the collective information could be

19   publicized to participating individuals. This would be particularly advantageous in en-

20   couraging members of an affinity group to promote their individual efforts so as to cause

21   the collective affinity group to achieve a selected goal, or in encouraging sub-populations

22   of a population to promote their individual efforts so as to cause the collective efforts of

1   each sub-population to match or exceed other sub-populations.   These advantages are

2   achieved in embodiments of the invention in which each individual uses a client device to

3   enter values (either over a period of time, or in response to a prompt by the client device),

4   and in which the aggregated or pooled information is presented by means of a broadcast

5   medium or other communication technique. For example, members of a weight-loss club

6   can aggregate their individual weight-loss each day, so that the aggregated results can be

7   announced on a popular television show or displayed at their client devices.

8

9   Summary of the Invention

10

11   The invention provides a method and system for aggregating and pooling

12   information with feedback in a computer communication system. A communication sys-

13   tem includes a server device and a set of client devices. Each client device collects in-

14   formation from an associated individual (whether by asking questions of those individu-

15   als, or accepting data input from peripheral devices), and transmits that data to a server

16   device. The server device, or some other device at its behest, determines statistical in-

17   formation with regard to that data (such as aggregate, correlation, dispersion, or other

18   measures), and provides that information to a communication channel for distribution to

19   the individuals.

20

21   In a first preferred embodiment, the communication channel includes a

22   broadcast communication channel that members of an affinity group can display. In a

1   second preferred embodiment, the communication channel includes redistributing the de-

2   termined statistical measures to associated individuals using the client devices. In a first

3   aspect, the invention includes distributing the computed statistical measure (such as an

4   aggregate or sum) for the entire population. For example, the first aspect would include

5   announcing a total weight-loss for a weight-loss club on a television show. In a second

6   aspect, the invention includes comparing the computed statistical measure for a first sub-

7   population against a similar statistical measure for a second sub-population. For example,

8   the second aspect would include comparing total weight-loss for selected teams and

9   awarding a prize or other benefit to the team with the best result.

10

11   Brief Description of the Drawings

12

13   Figure 1 shows a block diagram of a computer communication system for

14   aggregating and pooling information.

15

16   Figure 2 shows a process flow diagram of a method for aggregating and

17   pooling information in a computer communication system.

18

19   Detailed Description of the Preferred Embodiment

20

21   In the following description, a preferred embodiment of the invention is de-

22   scribed with regard to preferred process steps and data structures. Embodiments of the

1   invention can be implemented using general purpose processors or special purpose proc-

2   essors operating under program control, or other circuits, adapted to particular process

3   steps and data structures described herein. Implementation of the process steps and data

4   structures described herein would not require undue experimentation or further invention.

5

6   *Related Applications*

7

8   Inventions described herein can be used in combination or conjunction with

9   inventions described in the following patent application(s):

10

11   o   Application Serial No. _____, Express Mail Mailing No. EE261914722US,

12   filed September 23, 1998, in the name of Stephen J. Brown, titled "Modeling and

13   Scoring Risk Assessment," assigned to the same assignee, attorney docket number

14   HHN-003;

15

16   and

17   o   Application Serial No. _____, Express Mail Mailing No. EI027453472US,

18   filed September 23, 1998, in the name of Stephen J. Brown, titled "Reducing Risk

19   Using Behavioral and Financial Rewards," assigned to the same assignee, attorney

20   docket number HHN-004.

21

1   These applications are hereby incorporated by reference as if fully set forth

2   herein.

3

4   *System Elements*

5

6   Figure 1 shows a block diagram of a computer communication system for

7   aggregating and pooling information.

8

9   A system 100 includes a set of client devices 110, a communication path

10   120, a server device 130, and remote workstation 140.

11

12   Client Devices

13

14   The client devices 110 can be identical or can be of differing types. Thus,

15   some client devices 110 can include the first type of client devices 110 as described be-

16   low; some client devices 110 can include the second type of client devices 110 as de-

17   scribed below, or some client devices 110 can include alternative types of client devices

18   110.

19

20   A first type of client device 110 includes a computer 111 (including a proc-

21   essor, memory, and mass storage), a set of web browser software 112, and a modem 113.

1   An embodiment of the first client device 110 is described in detail in the On-Line Bidding

2   Disclosures.

3

4   The first type of client device 110 operates under control of the web

5   browser software 112 and operating software to allow an operator 114 to perform web

6   browsing activity. Known web browser software is available from Netscape Corporation

7   or from Microsoft Corporation. Web browsing activity is described in documentation

8   available from either of those companies.

9

10   The first type of client device 110 uses the modem 113 to send and receive

11   messages using the communication path 120. The communication path 120 is described

12   in further detail below.

13

14   A second type of client device 110 includes a "remote apparatus" such as

15   described in the following patent application:

16

17   o   Application Serial No. 08/847,009, filed April 30, 1997, in the name of Stephen J.

18   Brown, titled "Monitoring System for Remotely Querying Individuals," assigned

19   to the same assignee, attorney docket number RYA-126.

20

21   This application is hereby incorporated by reference as if fully set forth

22   herein.

The second type of client device 110 includes a display 115, an input device 116, an input port 117, and a communication interface 118.

The second type of client device 110 uses the display 115 to inform the operator 114 that input information is desired. The operator 114 can comprise a patient, a caregiver for the patient, or some other person. Preferably, the display 115 includes an alphanumeric display capable of displaying a question or request to the operator 114.

The second type of client device 110 uses the input device 116 to receive an answer to the question or request. For example, if the question asks for the patient's weight that day, the operator 114 uses the input device 116 to input the patient's weight for that day. The input device 116 can include a keypad or keyboard, such as for a computer or a television remote control, or can include a more restricted set of keys by which the operator 114 can increment, decrement, or accept a value to be entered for the patient's weight for that day.

The second type of client device 110 uses the input port 117 to receive data from a measuring device or other device. For example, the display 115 can request that the operator 114 couple the second client device 110 to a medical scale with an electronic readout, and the input port 117 can receive the electronic readout so as to directly receive a signal corresponding to the patient's weight for that day.

The second type of client device 110 uses the modem 113 similarly to the first type of client device 110, to send and receive messages using the communication path 120.

In alternative embodiments, the client device 110 may includes a wide variety of other devices, possibly including an electronic toy (such as a "game boy" or "virtual pet"), a telephone inter-operating with an interactive voice response system, a television set-top box inter-operating with a cable or satellite television interactive system, a medical device operated at medical personnel office, or any other system by which the operator 114 can enter a value to be used by the system 110 for aggregation and response.

Communication Path

The communication path 120 includes a set of electronic communication links for sending and receiving messages between the client devices 110 and the server device 130.

In a preferred embodiment, the communication path 120 includes the internet, to which the client devices 110 and the server device 130 are coupled. The messages are formatted using a communication protocol for use with the internet, such as TCP/IP, HTML, or a combination thereof. In alternative embodiments, the modem 113 may be

1   replaced by any suitable communication interface, such as a direct communication link

2   (such as a land-line or radio), another type of network link (such as a LAN, WAN, or

3   combination thereof), or using another communication network (such as a private or pub-

4   lic telephone network).

5

6   Server Device

7

8   The server device 130 includes a computer 131 (including a processor,

9   memory, and mass storage), a database 132, and a modem 133. The server device 130 is

10 similar to the "on-line auction company 12" described in detail in the On-Line Bidding

11 Disclosures.

12

13   The server device 130 uses the modem 133 to send and receive messages

14 using the communication path 120.

15

16   The server device 130 uses the database 132 to receive individual values

17 entered by each client device 110, and to identify those individual values with their asso-

18 ciated client device 110. The server device 130 also uses the database 132 to determine

19 statistical measures of the pool of those values in response thereto.

20

1   In a preferred embodiment, the server device 130 operates in a similar man-

2 ner as the "on-line auction company 12" described in detail in the On-Line Bidding Dis-

3 closures

4

5   In a first preferred embodiment, the server device 130 aggregates the indi-

6 vidual values entered by each client device 110. The server device 130 determines an ag-

7 gregate value for the set of individual values, and sends that aggregate value back to each

8 client device 110. Each client device 110 then displays the aggregate value to each indi-

9 vidual operator 114, for use by the operator 114 or by an associated person, such as the

10 patient.

11

12   For example, if the individual values each represent the weight lost by the

13 patient for that day, the server device 130 can aggregate those values to determine a total

14 weight lost by the entire set of patients having client devices 110. The server device 130

15 can then feed back that information to each client device 110 so that each patient can be

16 motivated to contribute to the group effort, even if that individual patient's contribution is

17 relatively minor.

18

19   The aggregate value determined by the server device 130 can be any statis-

20 tical measure or other calculated measure responsive to the set of individual values pro-

21 vided by the set of client devices 110. For example, the aggregate value can be a total (as

22 described with reference to the On-Line Bidding Disclosures), a maximum or minimum

12

1   value, a median value, a selected centile value, a variance or standard deviation, or some

2   other measure. It is expected that the aggregate value will have meaning to each individ-

3   ual patient associated with a client device 110, even if that individual patient's contribu-

4   tion to that aggregate is relatively minor.

5

6   In a second preferred embodiment, the server device 130 aggregates the in-

7   dividual values entered by each client device 110, but determines the aggregate values

8   with regard to a set of affinity groups with which each individual is associated. As de-

9   scribed in the On-Line Bidding Disclosures, each individual operator 114 at each individ-

10   ual client device 110 can choose to associate themselves with one or more selected affin-

11   ity groups. As described in the On-Line Bidding Disclosures, these affinity groups con-

12   test against each other to obtain the "best" aggregate value. For example, in an on-line

13   auction, the best aggregate value is the highest total bid.

14

15   The server device 130 determines a separate aggregate value for each affin-

16   ity group, and feeds back those separate aggregate values to each client device 110 (or to

17   just those client devices 110 associated with the selected affinity group).

18

19   For example, if the individual values each represent the weight lost by the

20   patient for that day, the server device 130 can determine separate aggregate values for

21   each affinity group, to determine a total weight lost by the entire set of patients in each

22   affinity group. The server device 130 can then feed back that information to each client

1   device 110 so that each patient can be motivated to contribute to their selected affinity

2   group effort, even if that individual patient's contribution is relatively minor.

3

4   The individual values and the separate aggregate values can be selected

5   from a wide variety of possible values, so as to promote individual well being on behalf

6   of each patient, and on the part of each selected affinity group.

7

8   For a first example, the individual values can be the measured height and

9   weight for each patient, and the aggregate value (whether a single aggregate value or a set

10   of separate aggregate values) can be a deviation from ideal weight for the entire affinity

11   group.

12

13   For a second example, the individual values can be monetary contributions

14   to a charitable or other financial cause, and the aggregate value (whether a single aggre-

15   gate value or a set of separate aggregate values) can be a total monetary contribution.

16

17   For a third example, the individual values can be sales made by field sales-

18   persons for a company or product, and the aggregate value (whether a single aggregate

19   value or a set of separate aggregate values) can be a total amount of sales.

20

21   / / /

14

1   <u>Remote Workstation</u>

2

3   A remote workstation 140 is coupled to the server device 130, so as to ac-

4   cess information in the database 132 and to receive the aggregate values (whether a single

5   aggregate value or a set of separate aggregate values).

6

7   The remote workstation 140, similar to the first type of client device 110,

8   includes a computer 141 (including a processor, memory, and mass storage), a set of da-

9   tabase software 142 or other display software (such as a set of web browser software),

10 and a modem 143.

11

12   The remote workstation 140 uses the database software 142 or other display

13 software to access the database 132. In accessing the database 132, the remote worksta-

14 tion 140 can receive the aggregate values (whether a single aggregate value or a set of

15 separate aggregate values), or can receive selected sets of individual values from the cli-

16 ent devices 110.

17

18   The remote workstation 140 uses the modem 143 similarly to the way the

19 client device 110 or the server device 110 use their respective modems.

20

21   An operator 144 at the remote workstation 140 can use the database soft-

22 ware 142 or other display software to add a broadcast message to the database 132. The

1   server device 130, when feeding back the aggregate value, sends the broadcast message to

2   the client devices 110.

3

4   The broadcast message can be a congratulatory message relating to the re-

5   sultant aggregate value, an exhortatory or inspirational message for the one or more se-

6   lected affinity groups, or a commercial or political message to one or more selected affin-

7   ity groups.

8

9   For a first example, if the resultant aggregate value indicates that a weigh-

10   loss club has collectively lost 10,000 pounds of weight in one day, and this is a new rec-

11   ord, the broadcast message can indicate the new record and congratulate all patients, even

12   those whose contribution was relatively minor.

13

14   For a second example, the broadcast message can be a daily inspirational

15   message for an affinity group, selected by the operator 144 at the remote workstation 140.

16

17   For a third example, the broadcast message can be a prize announcement (or

18   an announcement of another benefit) to the individual patient who contributes most to the

19   aggregate value. Similarly, when there are multiple affinity groups, the broadcast mes-

20   sage can announce a prize or other benefit to the team with the best result.

21

22   / / /

1   *Method of Operation*

2   -

3   Figure 2 shows a process flow diagram of a method for aggregating and

4   pooling information in a computer communication system.

5

6   A method 200 includes a set of flow points to be reached, and steps to be

7   performed, by elements of the system 100, including the client devices 110, the server de-

8   vice 130, and the remote workstation 140.

9.

10   Client/Server Feedback

11

12   At a flow point 210, the system 100 is ready to receive individual values

13   from client devices 110.

14

15   At a step 211, client devices 110 receive individual values from their asso-

16   ciated operators 114. As noted above, each client device 110 can receive an individual

17   value in response to a question-and-answer session, or can receive an individual value in

18   response to a coupled data-collection device.

19

20   At a step 212, client devices 110 send their individual values to the server

21   device 130. Operators at each client device 110 can select an affinity group in response

22   to a menu of affinity groups presented by the server device 130.

1

2   At a step 213, the server device 130 receives the individual values and rec-

3   ords them in the database 132.

4

5   At a step 214, the server device 130 determines one or more aggregate val-

6   ues (either a single aggregate value or a set of separate aggregate values) in response to

7   the set of individual values.

8

9   At a step 215, the server device 130 feeds back the one or more aggregate

10   values to the client devices 110.

11

12   At a step 216, the client devices 110 display the fed back aggregate values

13   to their associated operators 114.

14

15   The method 200 thereafter proceeds with the flow point 210 again, such as

16   a next day. For example, the method 200 can be selected to operate at a same or similar

17   time each day.

18

19   Client/Workstation Feedback

20

21   At a flow point 220, the remote workstation 140 is ready to receive individ-

22   ual values or aggregate values from the server device 130.

1

2   At a step 221, the remote workstation 140 receives individual values or ag-

3   gregate values from the server device 130.

4

5   At a step 222, the operator 144 at the remote workstation 140 examines the

6   received individual values or aggregate values.

7

8   At a step 223, the operator 144 at the remote workstation 140 enters a

9   broadcast message to be sent to client devices 110.

10

11   At a step 224, the remote workstation 140 sends the broadcast message to

12   the server device 130.

13

14   At a step 225, the server device 130 sends the broadcast message to selected

15   client devices 110 (or to all of them).

16

17   The method thereafter proceeds with the flow point 220 again, such as a

18   next day. For example, the method 200 can be selected to operate at a same or similar

19   time each day.

20

1   *Alternative Embodiments*

2   .

3   Although preferred embodiments are disclosed herein, many variations are

4   possible which remain within the concept, scope, and spirit of the invention, and these

5   variations would become clear to those skilled in the art after perusal of this application.

Claims

1.   A method of aggregating information for individuals in a population thereof, said method including steps for

     collecting information for each individual at a client device associated with said individual;

     sending said information from said client device to a server device;

     determining statistical information with regard to said information collected from a plurality of said client devices; and

     distributing said statistical information to said individuals.

2.   A method as in claim 1, wherein said steps for collecting information include steps for

     coupling said client device to a data collection element for said individual: and

     collecting said information from said data collection element.

3.   A method as in claim 1, wherein said steps for collecting information include steps for

     prompting said individual, at said client device, for said information; and

     collecting said information from said individual in response to said steps for prompting.

1

2   4.   A method as in claim 1, wherein said steps for determining statistical

3 information include steps for

4   determining a first statistical measure for a first sub-population of said indi-

5 viduals; and

6   determining a second statistical measure for a second sub-population of said

7 individuals.

8

9   5.   A method as in claim 1, wherein

10   said steps for determining statistical information include steps for (1) de-

11 termining a first statistical measure for a first sub-population of said individuals, and (2)

12 determining a second statistical measure for a second sub-population of said individuals;

13 and

14   said steps for distributing include steps for distributing both said first statis-

15 tical measure and said second statistical measure.

16

17   6.   A method as in claim 1, wherein

18   said steps for determining statistical information include steps for (1) de-

19 termining a first statistical measure for a first sub-population of said individuals, and (2)

20 determining a second statistical measure for a second sub-population of said individuals;

21 and

1 said steps for distributing include steps for (1) comparing said first statisti-

2 cal measure and said second statistical measure, and (2) distributing a result of said steps

3 for comparing.

4

5 7. A method as in claim 1, wherein

6 said steps for determining statistical information include steps for (1) de-

7 termining a first statistical measure for a first sub-population of said individuals, and (2)

8 determining a second statistical measure for a second sub-population of said individuals;

9 and

10 said steps for distributing include steps for (1) comparing said first statisti-

11 cal measure and said second statistical measure, and (2) awarding a benefit in response to

12 a result of said steps for comparing.

13

14 8. A method as in claim 1, wherein said steps for distributing include

15 broadcast communication.

16

17 9. A method as in claim 1, wherein said steps for distributing include

18 sending said statistical information from said server device to at least one said client de-

19 vice.

20

21 10. A method including steps for

23

1   entering, at each one of a set of client devices, a value associated with said

2 client device;

3   sending, for each one of said client devices, said value to a server device;

4   determining, at said server device, an aggregate value in response to said

5 values;

6   sending, from said server device to said client devices, said aggregate value;

7 and

8   displaying, at said client devices, said aggregate value.

9

10   11.   A system for aggregating information for individuals in a population

11 thereof, said system including

12   a set of client devices, each disposed for collecting an individual value for

13 an individual associated therewith;

14   a server device, disposed for receiving said individual values, and for de-

15 termining at least one aggregate value in response thereto;

16   a communication path between said client devices and said server device;

17   wherein said server device distributes said at least one aggregate value to a

18 plurality of said client devices.

19

20   12.   A system as in claim 11, wherein at least one said client device in-

21 cludes a data collection element disposed for measuring said individual value for said in-

22 dividual.

1

2   13.   A system as in claim 11, wherein at least one said client device in-

3   cludes

4   a display element, said display element capable of prompting said individ-

5   ual, at said client device, for said individual value; and

6   an input element, said input element disposed for collecting said individual.

7   value in response to said display element.

8

9   14.   A system as in claim 11, wherein said at least one aggregate value

10   includes

11   a first aggregate value for a first affinity group of said individuals; and

12   a second aggregate value for a second affinity group of said individuals.

13

14   15.   A system as in claim 11, wherein said communication path includes
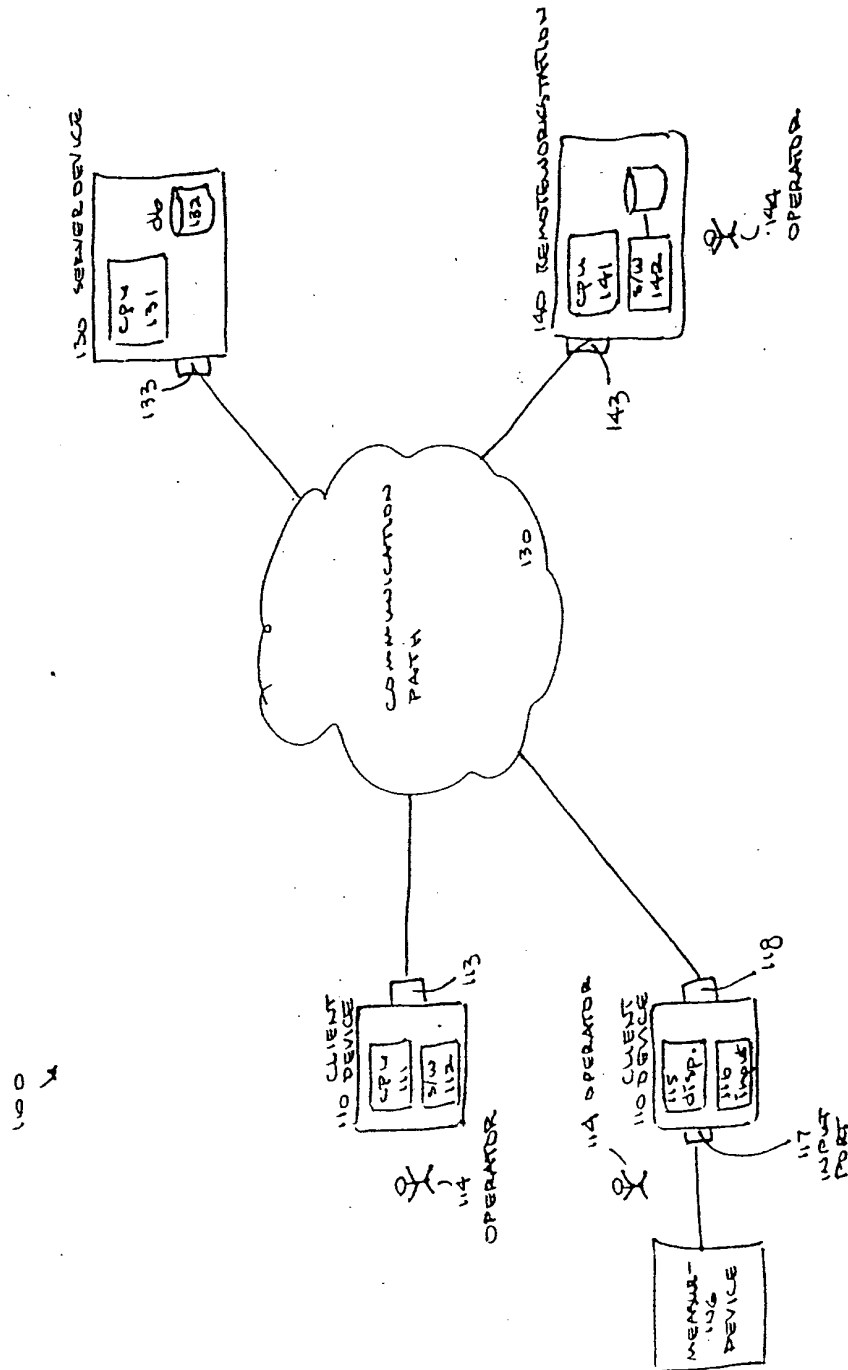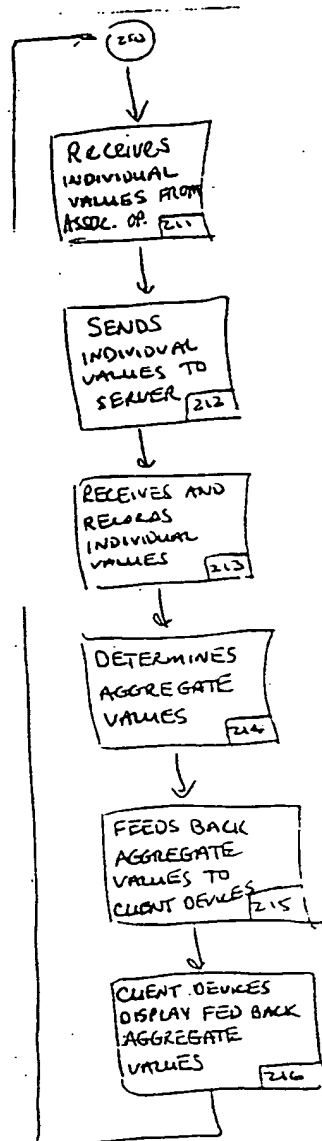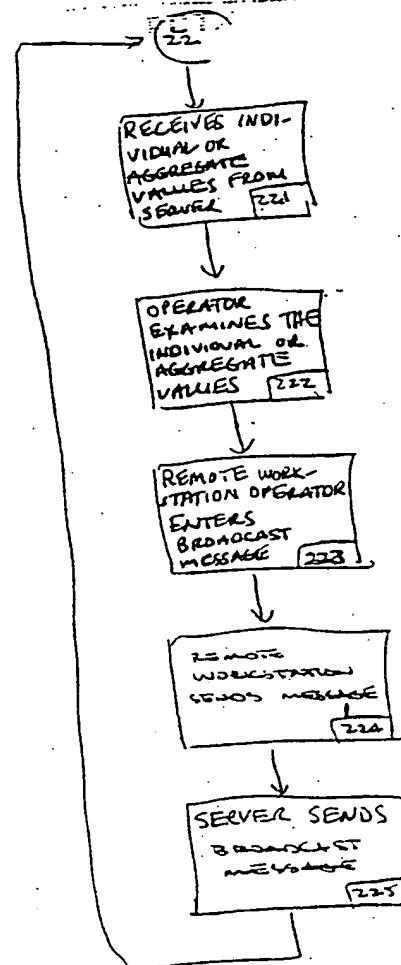
15   broadcast communication.

FIGURE 1

```
        ( 2.10 )                                    ( 2.20 )
           │                                           │
           ▼                                           ▼
    ┌──────────────┐                          ┌──────────────────┐
    │ RECEIVES     │                          │ RECEIVES INDI-   │
    │ INDIVIDUAL   │                          │ VIDUAL OR        │
    │ VALUES FROM  │                          │ AGGREGATE        │
    │ ASSOC. OP. │211│                        │ VALUES FROM      │
    └──────────────┘                          │ SERVER      │221│ │
           │                                  └──────────────────┘
           ▼                                           │
    ┌──────────────┐                                   ▼
    │ SENDS        │                          ┌──────────────────┐
    │ INDIVIDUAL   │                          │ OPERATOR         │
    │ VALUES TO    │                          │ EXAMINES THE     │
    │ SERVER   │212│                          │ INDIVIDUAL OR    │
    └──────────────┘                          │ AGGREGATE        │
           │                                  │ VALUES      │222│ │
           ▼                                  └──────────────────┘
    ┌──────────────┐                                   │
    │ RECEIVES AND │                                   ▼
    │ RECORDS      │                          ┌──────────────────┐
    │ INDIVIDUAL   │                          │ REMOTE WORK-     │
    │ VALUES   │213│                          │ STATION OPERATOR │
    └──────────────┘                          │ ENTERS           │
           │                                  │ BROADCAST        │
           ▼                                  │ MESSAGE     │223│ │
    ┌──────────────┐                          └──────────────────┘
    │ DETERMINES   │                                   │
    │ AGGREGATE    │                                   ▼
    │ VALUES   │214│                          ┌──────────────────┐
    └──────────────┘                          │ REMOTE           │
           │                                  │ WORKSTATION      │
           ▼                                  │ SENDS MESSAGE    │
    ┌──────────────┐                          │             │224│ │
    │ FEEDS BACK   │                          └──────────────────┘
    │ AGGREGATE    │                                   │
    │ VALUES TO    │                                   ▼
    │ CLIENT DEVICES│215│                     ┌──────────────────┐
    └──────────────┘                          │ SERVER SENDS     │
           │                                  │ BROADCAST        │
           ▼                                  │ MESSAGE          │
    ┌──────────────┐                          │             │225│ │
    │ CLIENT DEVICES│                         └──────────────────┘
    │ DISPLAY FED BACK│
    │ AGGREGATE    │        ┌──────────────┐
    │ VALUES   │216│        │  FIGURE  2   │
    └──────────────┘        └──────────────┘
```

CLIENT/SERVER FEEDBACK   CLIENT/WORKSTATION FEEDBACK

INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7   G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7   G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 703 540 A (SUN MICROSYSTEMS, INC.) 27 March 1996 (1996-03-27) the whole document	1-15
X	WO 96 08779 A (DOLPHIN SOFTWARE PTY. LTD.) 21 March 1996 (1996-03-21) the whole document	1-15
A	PITKOW ET AL: "RESULTS FROM THE FIRST WORLD-WIDE WEB USER SURVEY" JOURNAL OF COMPUTER NETWORKS AND ISDN SYSTEMS (SPECIAL ISSUE), vol. 27, no. 2, 25 May 1994 (1994-05-25), pages 1-15, XP002073755 the whole document	1-15

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[X] Further documents are listed in the continuation of box C   [X] Patent family members are listed in annex.

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"P" document published prior to the international filing date but later than the priority date claimed

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
10 January 2000	19/01/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Abram, R

Form PCT/ISA/210 (second sheet) (July 1992)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	PITKOW ET AL: "Using the Web as a survey tool: results from the second WWW user survey" COMPUTER NETWORKS AND ISDN SYSTEMS, vol. 27, 1995, pages 809-822, XP004013183 the whole document	1-15
A	PATENT ABSTRACTS OF JAPAN vol. 17, no. 255 (P-1539), 20 May 1993 (1993-05-20) & JP 04 372080 A (MATSUSHITA ELECTRIC IND CO LTD), 25 December 1992 (1992-12-25) abstract	1-15

1

INTERNATIONAL SEARCH REPORT

formation on patent family members

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 703540	A	27-03-1996	AU	701337 B	28-01-1999
			AU	3285295 A	04-04-1996
			CA	2158897 A	27-03-1996
			JP	9027001 A	28-01-1997
WO 9608779	A	21-03-1996	AU	3558195 A	29-03-1996
			CA	2199994 A	21-03-1996
			GB	2307574 A,B	28-05-1997
			US	5842195 A	24-11-1998
			US	5893098 A	06-04-1999
JP 04372080	A	25-12-1992	NONE		